

REMARKS**Status of the Claims**

Claims 1-9 are pending in this application. No claims have been canceled or amended. Claims 6-9 have been added. Support for the new claims is found at page 17, lines 19-22 and page 18, lines 25-33 of the specification. No new matter has been added by the above claim amendments. Applicants submit the following arguments in support of the allowability of the claims.

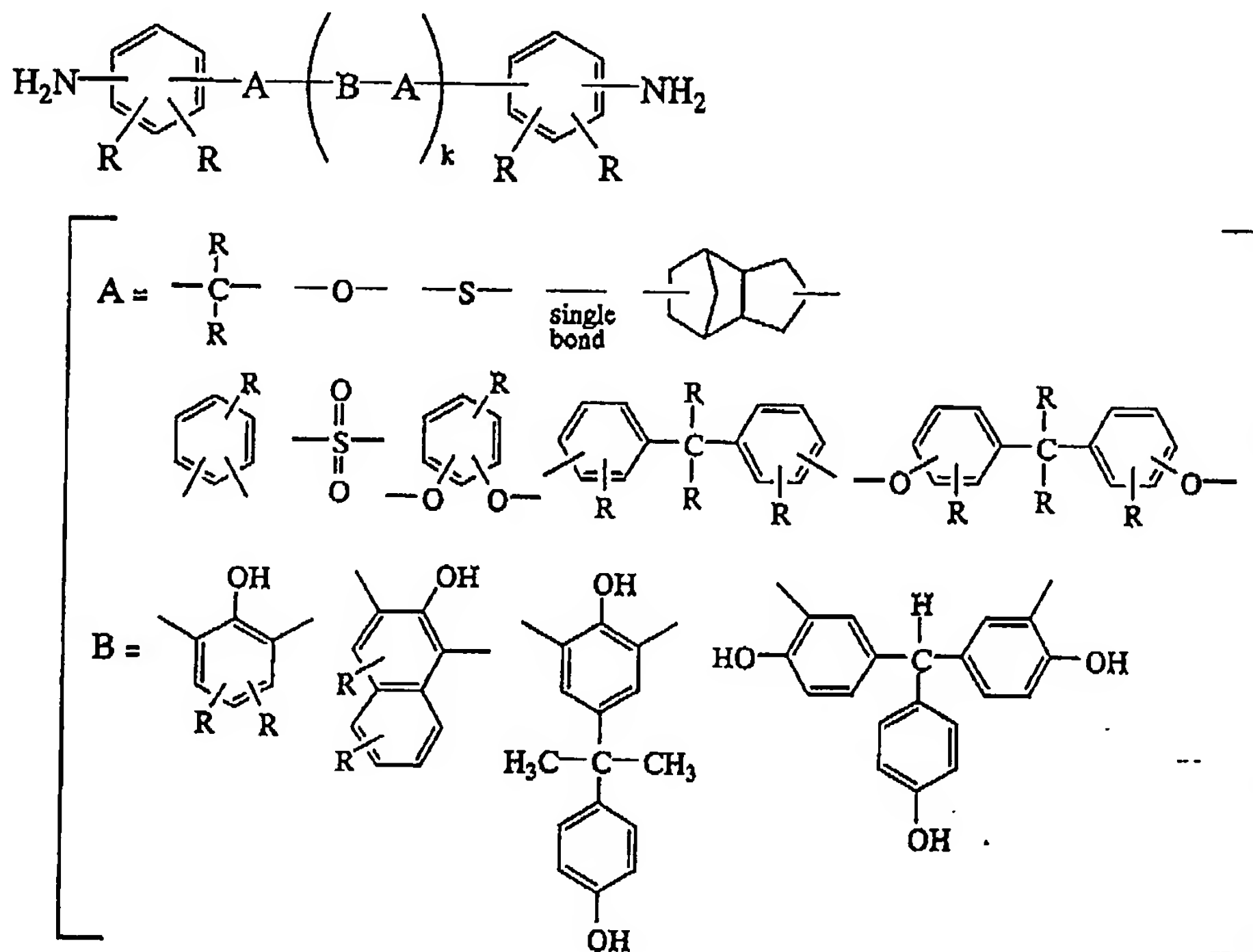
Rejection under 35 USC 102(b)

The Examiner rejects claims 1-5 as anticipated by Ohmari et al. USP 5,677,393 (Ohmari '393). Applicants traverse the rejection and respectfully request the withdrawal thereof.

The present invention is directed to a polyimide resin comprising recurring units of the structural formulae (1) and (2) as recited in claim 1 and prepared using a diamine bearing an aromatic ring having an amino radical attached thereto and another aromatic ring having a phenolic hydroxyl radical so that the polyimide resin has phenolic hydroxyl radicals in its skeleton. In the diamine used for preparing the inventive polyimide resin, the "another aromatic ring having a phenolic hydroxyl radical" does not take part in the reaction with the tetracarboxylic acid dianhydride since it does not have an amino radical, meaning it is not an aromatic ring which is positioned

at both ends of the molecular chain and to which an amino group to be a reactive site with tetracarboxylic acid dianhydride is attached; but is instead an aromatic ring, which is positioned in the middle of the molecular chain and to which only a phenolic hydroxyl group is attached.

More specifically, the above diamine is specifically illustrated as follows:

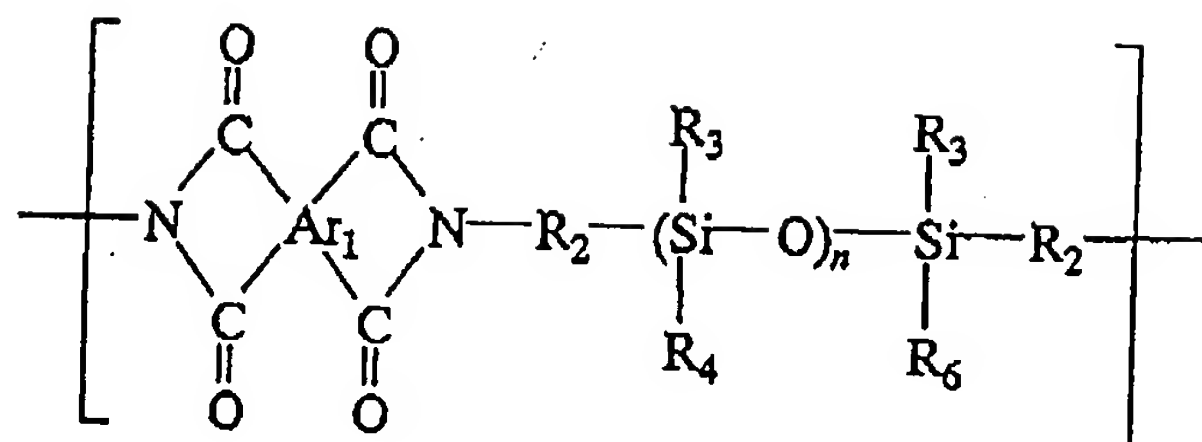


Therefore, the inner aromatic ring (in B) having a hydroxy group is not directly bonded to a nitrogen atom of an amino group.

The object of the present invention is to provide a polyimide resin having excellent properties, such as high adhesion, high reliability against humidity and low modulus of elasticity.

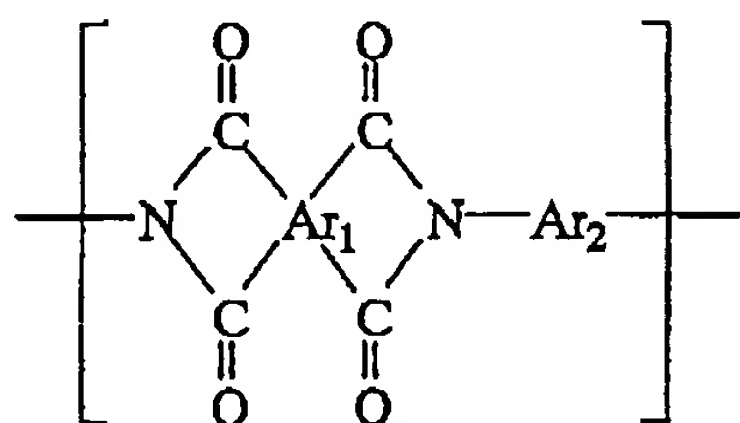
Applicants found that a polyimide resin having phenolic hydroxyl radicals in its skeleton which is prepared using a diamine bearing an aromatic ring having an amino radical attached thereto and another aromatic ring having a phenolic hydroxyl radical is fully reactive with an epoxy resin to provide excellent performance to attain the above objectives.

On the other hand, Ohmori '393 discloses polyimides with silicone units desirable for use in the Ohmori '393 invention, which are readily soluble in solvents and possess good film-forming properties. Useful as such solvent-soluble polyimides are aromatic radical-containing polyimides having a repeating unit represented by the following general formula (1)

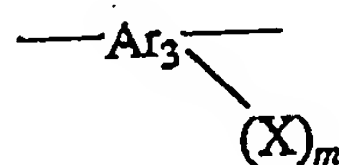


wherein Ar_1 is a tetravalent aromatic radical, R_1 and R_2 are divalent hydrocarbon radicals, R_3 to R_6 are hydrocarbon radicals having 1 to 6 carbon atoms and n is an integer from 1 to 20 and a repeating unit represented by the following general formula

(2)

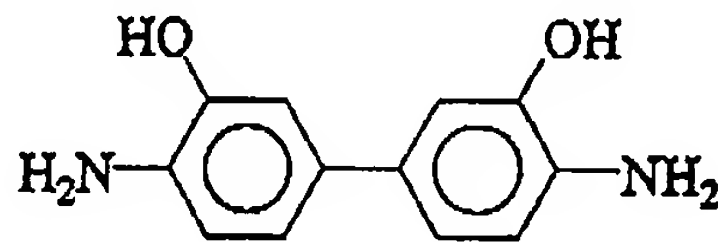


wherein Ar_1 is a tetravalent aromatic radical, Ar_2 is a divalent aromatic radical; with at least 1 mol % of the Ar_2 radical in the aforementioned general formula (2) being represented preferably by the following general formula (3)



wherein Ar_3 is a trivalent or tetravalent aromatic radical, X is hydroxyl, amino or carboxyl group and m is 1 or 2.

Ohmori '393 fails to disclose or suggest a hydroxyl group positioned according to the present invention. Ohmori '393 fails to describe the positioning or the bonding of $-\text{Ar}_2-$ to $-\text{Ar}_3(\text{X})-$. In the Examples in Ohmori '393, only $-\text{Ar}_3(\text{X})-\text{HAB}$: 4,4'-(3,3'-dihydroxy)diaminobiphenyl which is represented by the following formula is used.



Accordingly, HAB is not the diamine bearing an aromatic ring having an amino radical attached thereto and another aromatic ring having a phenolic hydroxyl radical as in the present invention. Moreover, in the examples where HAB is used corresponds to Synthesis Example 6 in Table 1 and Comparative Examples 1 to 3 in the present specification. Clearly, Ohmori '393 is distinguished from the present invention. Thus, the anticipation rejection should be withdrawn.

Conclusion

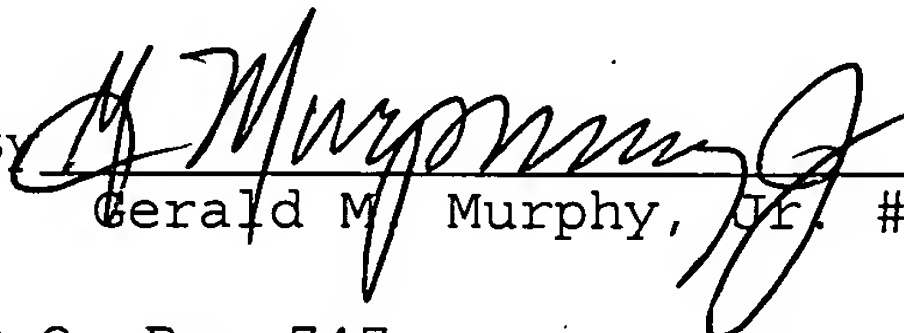
As Applicants have addressed and overcome all rejections in the Office Action, Applicants respectfully request that the rejections be withdrawn and that the claims be allowed.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Kecia Reynolds (Reg. No. 47,021) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.


If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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Attachment(s) :